

# A conspectus of *Merremia* Dennst. ex Endl. (Convolvulaceae) in Australia with the addition of two species

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## Summary

Johnson, R.W. (2009). A conspectus of *Merremia* Dennst. ex Endl. (Convolvulaceae) in Australia with the addition of two species. *Austrobaileya* **8(1)**: 55–63. A conspectus and key to the species of *Merremia* growing in Australia is provided. A new species from Western Australia, *Merremia kimberleyensis* R.W.Johnson, is described. A combination, *Merremia incisa* (R.Br.) Hallier f., which until recently had been overlooked, is shown to be the correct name for a well-known taxon from northern Australia. Descriptions and distribution maps have been provided for both these species.

Key Words: Convolvulaceae, *Merremia*, *Merremia kimberleyensis*, *Merremia incisa*, Australian flora, new species, identification key

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## Introduction

*Merremia* Dennst. ex Endl. is a pantropical genus of more than 100 species (Staples *in press*). In preparing an account of *Merremia* for the *Flora of Australia* some changes to, and clarification of, the current taxonomy have resulted. This paper is a precursor to the account in that publication. Until recently, eleven species of *Merremia* have been formally recognised as occurring in Australia with a further two species recognised but undescribed. Ten of these also occur in Malesia (Ooststroom 1953). Six were regarded as native while the only described

endemic species was thought to be *Merremia davenportii* (F.Muell.) Hallier f.

The status of two additional species, which have been recognised for many years as distinct, is clarified below.

## Materials and methods

This paper is based on specimens mainly held at the Queensland Herbarium (BRI) and other herbaria as cited. Naturalised species are indicated \*.

## Key to Australian species of *Merremia*

- 1 Leaves palmately lobed to palmately compound with up to 7 lobes or leaflets . . . . . 2
1. Leaves simple, entire, toothed, pinnately lobed or hastate, neither palmately lobed nor compound . . . . . 8
- 2 Leaves palmately lobed to near the base but not palmately compound; leaflets 3–7 . . . . . 3
2. Leaves palmately compound with 3–5 leaflets . . . . . 4
- 3 Plant hairy; leaf lobes coarsely dentate to irregularly pinnately lobed; corolla white with a rose to purple throat, 3–4.5 cm long . . . . . 3. *M. dissecta*
3. Plant glabrous; leaf lobes entire; corolla yellow, 5–6 cm long . . . . . 12. *M. tuberosa*

- 4 Plant with dense stellate indumentum . . . . . **2. *M. davenportii***
4. Plant glabrous or with simple hairs . . . . . 5
- 5 Peduncles glandular in the upper part, sometimes mixed with spreading hairs; sepals at flowering 3–8 mm. long; corolla to 2.5 cm long . . . **11. *M. quinquefolia***
5. Peduncles glabrous or hairy, but not glandular; sepals longer, 7.5–25 mm long; corolla 2.5–5 cm long . . . . . 6
- 6 Leaflets 3, outer leaflets with a secondary lobe, so appearing 5, leaflets undulate to occasionally toothed; sepals glabrous, 12–15 mm long, subequal, acute . . . . . **8. *M. kimberleyensis***
6. Leaflets 5, entire . . . . . 7
- 7 Outer sepals glabrous, 7–10 mm long, obtuse, much shorter than the inner; corolla 3–5 cm long. . . . . **10. *M. quinata***
7. Outer sepals patently hirsute, 12–25 mm long, acute or acuminate, slightly longer than the inner; corolla 2–3.5 cm long . . . . . **1. *M. aegyptia***
- 8 Leaves peltate . . . . . **9. *M. peltata***
8. Leaves never peltate. . . . . 9
- 9 Corolla pink to mauve, glabrous; leaves initially ovate, cordate, dentate, becoming hastate with a long linear mid-lobe and shorter dentate basal lobes; sepals ± equal in length . . . . . **7. *M. incisa***
9. Corolla white, yellow or orange; leaves not as above; outer sepals shorter than inner . . . . . 10
- 10 Corolla 2–3.5 cm long, mid-petaline bands of corolla hairy externally; flowers in umbelliform cymes, rarely solitary . . . . . **13. *M. umbellata***
10. Corolla 2 cm long or less, mid-petaline bands of corolla glabrous; flowers solitary or in few flowered cymes, not umbelliform . . . . . 11
- 11 Sepals slightly unequal in length; outer sepals 3–7 mm long, broadly ovate to orbicular or broadly spatulate, concave; inner sepals 4–8 mm long; capsule depressed-globular to broad-conical, wrinkled . . . . . 12
11. Sepals distinctly unequal in length; outer sepals 3–4 mm long, elliptic to oblong-elliptic or oblong, slightly concave or flat; inner sepals 4.5–6 mm long; capsule broad-ovoid to globular, smooth . . . . . **6. *M. hirta***
- 12 Outer sepals 4–7mm long, broadly ovate to orbicular, emarginate, not or slightly mucronulate, usually hairy; inner sepals 6–8 mm long; corolla 1.5–2.5cm long; capsule depressed-globose, coarsely wrinkled; petioles appressed pilose, usually without tubercles . . . . . **4. *M. gemella***
12. Outer sepals 3–4 mm long, broadly ovate to spatulate, broadly notched at the apex and distinctly mucronate, mucro directed outwards, usually glabrous; inner sepals 4–5 mm long; corolla 0.5–1 cm long; capsule depressed-globose or broadly conical, somewhat 4-angular, less coarsely wrinkled; petioles often with small tubercles . . . . . **5. *M. hederacea***

## Conspectus of the Australian Species of *Merremia*

**1. \**Merremia aegyptia*** (L.) Urb., *Symb. Antill.* 4: 505 (1910); *Ipomoea aegyptia* L., *Sp. Pl.* 1: 162 (1753); *Convolvulus pentaphyllus* L., *Sp. Pl.*, 2<sup>nd</sup> edn, 1: 223 (1762), *nom. illeg.*; *Ipomoea pentaphylla* Jacq., *Collectanea* 2: 297 (1789); *Merremia pentaphylla* (Jacq.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893). **Type:** America, Herb. C.Linnaeus 218.35 (lecto: LINN, *n.v.*, [microfiche IDC 177-5. 121: III. 2], *fide* Austin (1982: 84)).

**Distribution:** Western Australia, Northern Territory; native of tropical America, now widespread throughout the tropics.

**2. *Merremia davenportii*** (F.Muell.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893), as *M. davenportii*; *Ipomoea davenportii* F.Muell., *Fragm.* 6: 97 (1868), as *I. davenportii*. **Type:** “Davenport’s Ra.” [Davenport Ra., N.T.], *s.dat.*, J.M.Stuart *s.n.* (holo: MEL).

**Distribution:** Western Australia, Northern Territory, Queensland; endemic species.

**3. \**Merremia dissecta*** (Jacq.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893); *Convolvulus dissectus* Jacq., *Observ. Bot.* 2: 4, t. 28 (1767). **Type:** seeds from America, *Jacquin*, cult. in Vienna, *n.v.*, *fide* Austin (1979: 219).

*Ipomoea sinuata* Ortega, *Nov. pl. descr. dec.* 84 (1798). **Type:** “Habitat in Insulâ Cubâ, ubi Aguinaldo vulgò vocatur”, *n.v.*, *fide* Ooststroom (1939: 302).

**Distribution:** Western Australia, Northern Territory, Queensland, South Australia; native of tropical and subtropical America, now widespread throughout the tropics.

**4. *Merremia gemella*** (Burm.f.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893); *Convolvulus gemellus* Burm.f., *Fl. Indica* 46, t. 21, fig. 1. (1768); *M. gemella* var. *gemella*, Ooststr., *Blumea* 3: 302 (1939). **Type:** Java, *s. dat.*, *coll.*, (lecto: G [Herb. N.L.Burman], *n.v.*, *fide* Staples & Jacquemoud (2005: 448)).

*Ipomoea flava* Benth., *Fl. Austral.* 4: 424 (1869). **Type:** tributaries of the Albert R., [Qld], 31 August 1856, F.Mueller *s.n.* (holo: MEL).

**Distribution:** Western Australia, Northern Territory, Queensland; also SE Asia and New Guinea.

**5. *Merremia hederacea*** (Burm.f.) Hallier f., *Bot. Jahrb. Syst.* 18: 118 (1893); *Evolvulus hederaceus* Burm.f., *Fl. Indica* 77, t. 30, fig. 2 (1768). **Type:** Java, *s.dat.*, D.Pryon *s.n.* (holo: ?G [Herb. N.L.Burman]; *n.v.*, *fide* Ooststroom (1939: 306)).

*Ipomoea chryseides* Ker Gawl., *Bot. Reg.* 4: t. 270 (1818); *Merremia chryseides* (Ker Gawl.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893). **Type:** “Koenig, India Orientalis”, *n.v.*, *fide* Ooststroom (1939: 302).

**Distribution:** Western Australia, Northern Territory, Queensland; also tropical Africa, SE Asia and New Guinea.

**6. *Merremia hirta*** (L.) Merr., *Philipp. J. Sci.*, C. 7: 244 (1912); *Convolvulus hirtus* L., *Sp. Pl.* 1: 159 (1753); *M. hirta* var. *hirta*, Ooststr., *Blumea* 3: 311 (1939). **Type:** India, *s.dat.*, Osbeck *s.n.* (lecto: LINN [Herb. C.Linnaeus 218.56]; *n.v.*, [microfiche IDC 177-5. 122: III. 6], *fide* Merrill (1912: 245)).

*Convolvulus caespitosus* Roxb., *Fl. Ind.*, 2: 70 (1824); *Merremia caespitosa* (Roxb.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893). **Type:** “Native of the dry lands of Dinagepore and Rungpore, from thence the seeds were sent, by Dr Carey, to the Botanic Garden at Calcutta”, *n.v.*, *fide* Ooststroom (1939: 307).

*Ipomoea linifolia* Blume, *Bijdr.* 721 (1826). **Type:** Moluccas, [Maluku, Indonesia], *n.v.*, *fide* Ooststroom (1939: 307).

**Distribution:** Queensland; also S and SE Asia and New Guinea.

**7. *Merremia incisa*** (R.Br.) Hallier f., *Meded. Rijks-Herb.* 1: 21 (1910); *Ipomoea incisa* R.Br., *Prodr.*: 486 (1810); *Convolvulus incisa* (R.Br.) Spreng., *Syst. Veg.* 1: 609 (1824). **Type:** Northern Territory. Carpentaria. Island s [Morgans Island], 21 January 1803, R.Brown [Bennett no. 2751] (holo: BM [photo BRI]).

*Ipomoea cinerascens* R.Br., *Prodr.*, 486 (1810); *Convolvulus cinerascens* (R.Br.) Spreng., *Syst. Veg.* 1: 609 (1824). **Type:** Northern Territory. North Coast. Island of α1 [Everett

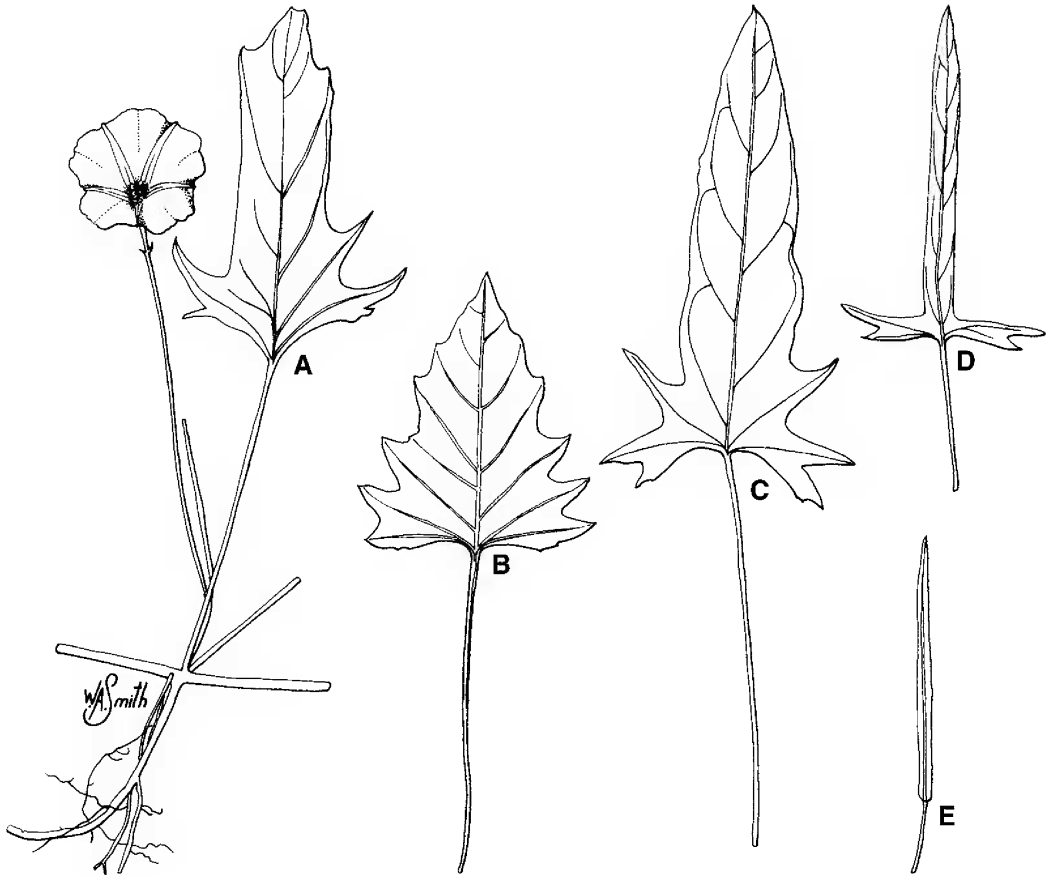
Island], 4 March 1803, *R. Brown* [*Bennett no. 2752*] (holo: BM).

*Merremia* sp. B, of Wheeler & Marchant (1992: 756).

Perennial with a tap root and trailing stems, rooting at the nodes and twining towards the tips. Stems terete, herbaceous, densely to sparsely hairy or ± glabrous; hairs spreading, tubercle-based, 0.25–0.7 mm long. Leaves simple, petiolate; petiole 0.5–7.5 cm long, blade on more basal leaves ovate, ovate-oblong, rarely narrowly ovate, 1–4.5 cm long, 1.2–4.5 cm wide, base truncate or obtuse to sub-cordate, apex obtuse or rounded and emarginate, rarely acute, mucronate, margin toothed, sometimes becoming shallowly lobed towards the leaf base, 4–7 teeth per side, becoming hastate in upper parts, 2.5–10 cm long, 0.2–5 cm wide with an entire to occasionally toothed linear to linear-oblong, rarely linear-triangular or narrowly elliptic terminal lobe, basal lobes dentate to 2 or 3 lobed, discolourous, densely to sparsely hairy or ± glabrous on both sides, hairs as for the stem, midrib and 2 pair of veins at the base and 3–6 each side. Inflorescence axillary, 1, occasionally 2 per axil, cymose with 1–3 flowers, occasionally compound and scorpioid, bracteolate; peduncle 10–75 mm long, terete, hairs, including those on secondary branches, dense to scattered, rarely ± glabrous; bracteoles opposite to sub-opposite, concave, linear to narrowly ovate or elliptic, 0.5–2 mm long, 0.4–1 mm wide, acute to truncate, apiculate, sparsely hairy to glabrous, margin hyaline, abscising post-flowering; pedicel 3–12 mm, slightly dilated upwards, glabrous or rarely very sparsely hairy. Outer sepals ovate to ovate-oblong or ovate-triangular or elliptic, 5–7 mm long, 2–3.6 mm wide, extending to 9 mm long in fruit, obtuse, occasionally acute, apiculate, glabrous or with an occasional hair, glaucous, margin narrowly hyaline, smooth; inner sepals ovate to ovate-lanceolate, 5–7 mm long, 2.5–3.7 mm wide, extending to 9 mm long and 5 mm wide at fruiting, glabrous, acute to obtuse, apiculate, margin broadly hyaline. Corolla funnel-shaped, limb ± entire, 10–15 mm long, 15–25 mm diameter, pink to mauve, occasionally white, with a deep yellow throat, glabrous; petals 10–17 mm long, 8–10

mm wide at the rim, tip rounded, emarginate to shallowly 2-lobed, apiculate, slightly erose, mid-petaline band with 5 darker longitudinal veins. Stamens 5, filaments very unequal, fused to the base of the corolla tube for 1–1.5 mm, free for 2–6 mm long, terete above, flattened and dilated downwards into a triangular basal fused area, with short cylindrical glandular hairs along the margin to just above the point of attachment, hairs to 0.5 mm long, base cylindrical, clear, tip conical, milky, glabrous above; anthers oblong to ovate-oblong, 1.2–2 mm long, 0.7–1 mm broad, base sagittate, basal lobes 0.3–0.5 mm long, apex rounded truncate to slightly emarginate, twisting at maturity; pollen tricolpate. Ovary ovoid *c.* 1.5 mm high 1.2 mm diameter, golden yellow, glabrous, 2-celled, 2 ovules per cell; style 1, slender, 3–3.5 mm long; stigma biglobular. Capsule globular to globular-ovoid with persistent style base, 6.5–8 mm long, 5–6.5 mm wide; seeds globular-ovoid, 4.3–4.7 mm long, 3.2–3.6 mm wide, reticulate-foveolate, dark brown to black, mostly glabrous with short hairs around the hilum and along the back and central ridge. **Fig. 1.**

*Additional selected specimens (52 specimens examined):* **Western Australia.** Piccaninny Creek Gorge, 15 km SE of Bungle Bungle Range, NE Kimberley, Apr 1985, *Blackwell BB5, BB122* (PERTH); tip of One Arm Point, Apr 1992, *Carter 533* (BRI); 19 km from Durack River crossing on Gibb River to Wyndham road, May 1986, *Clarkson 6553* (BRI); creek crossing, 5 km NW of Kalumburu Road junction on Mitchell River Station track, Jun 1987, *Edinger 377* (BRI, PERTH); Uwins Island, May 2003, *Handasyde TH1974* (BRI); 1 km above campsite on tributary of Prince Regent River, 19 km SE mouth, Jun 1984, *Kenneally 8900* (PERTH); SW side of Sir Graham Moore Island, Mar 1993, *Mitchell 2941* (BRI); King Leopold Ranges; hill between upper Lennard River & Eva Gorge, Apr 1988, *Sands 4619* (K, PERTH); near Prison Tree, 23 km S of Great Northern Highway on Moochalabra Dam road, Apr 1983, *Wilson 4848* (NSW). **Northern Territory.** DARWIN & GULF. *c.* 40 miles [64 km] E of Mataranka, Mar 1972, *Byrnes 2574* (BRI, DNA); Magela Creek upper catchment, Apr 1995, *Cowie & Brennan 5640* (BRI, DNA); Arnhem Land, 19 km E of Jabiru, Apr 1989, *Johnson 4521* (BRI); Mt Brockman Outlier, 15 km SE of Jabiru, Apr 1989, *Johnson 4638* (BRI); 6 km W Roper Bar, Jun 1977, *Must 1510* (BRI, DNA); Buckingham River, E. Arnhem Land, Apr 1992, *Russell-Smith 8584* (BRI, DNA); 10 km from East Alligator River crossing on Oenpelli road towards Arnhem Land, Apr 1980, *Telford & Wrigley 7739* (BRI, CANB). **BARKLY TABLELAND:** 76 km S Elliott, Apr 1996, *Albrecht 7460* (BRI, DNA); Stuart Highway, North Hayward Creek, 58 km N of Tennant Creek, Apr 1983,



**Fig. 1.** *Merremia incisa*. A. flowering branch  $\times 1$ . B–E. variation in leaf shape from basal to terminal shoots  $\times 1$ . All from Johnson 4638 (BRI). Del. W.Smith.

*Wilson & Barker 4701* (NSW). **Queensland.** BURKE DISTRICT: Spring, c. 3 km SE of Musselbrook Gorge, Jun 1998, *Cumming 17664* (BRI); Amphitheatre, 41 km N of Musselbrook Mining Camp, May 1995, *Johnson & Thomas MRS832* (BRI).

**Distribution and habitat:** *Merremia incisa* occurs from north of Broome in Western Australia, across the northern part of the Northern Territory and extending into Queensland, north of Camooweal (**Map 1**). It is commonly associated with sandstone massifs often growing along ephemeral creeks and pools. It grows in open tussock or hummock grassy eucalypt woodlands on sandy soils, often containing stone or lateritic gravel.

**Phenology:** Flowering has been recorded from January to August with fruits occurring from March to August.

**Affinities:** *Merremia incisa* is a fairly distinct species and is perhaps most closely related to *M. hirta* (L.) Merr. It differs from the latter species in having coarsely toothed to lobed leaves and pink, not yellow flowers.

**Notes:** *Ipomoea incisa* has long been recognised as a coastal species growing in the Northern Territory. It was thought that inland specimens growing in sandstone areas belonged to a related but undescribed taxon. It was described as *Merremia* species (Arnhem Land) in Elliot & Jones (1993) and under *Merremia* sp. B. in the *Flora of the Kimberley Region* (Wheeler & Marchant 1992). Further



study of the coastal and inland populations suggests they are both part of the one taxon. Study of the pollen from the types of *Ipomoea incisa* and *I. cinerascens* indicated they had smooth colpate pollen and belonged to the genus *Merremia*. However, the new combination for *M. incisa* made by Hallier f. was overlooked in Australian literature and did not appear in the *Australian Plant Names Index* (Chapman 1991). As suggested by Bentham (1869), *I. cinerascens* appears to be a more villous form of *I. incisa*, and after studying the type material I would support his views.

**Etymology:** The specific epithet refers to marginal toothing and incision of the leaf blades on the type specimen.

**8. *Merremia kimberleyensis*** R.W.Johnson **species nova**, affinis *M. quinatae* (R.Br.) Ooststr. sed differt foliis tribus non quinque et sepalis acutis, subaequalibus non exterioribus obtusis et quam interioribus multis brevioribus. **Typus:** Western Australia. Kachana Station, [c. 40 km SE of Kununurra], 16°02' S, 128°56' E, 1 January 1995, *T.Handasyde TH.95 KAC 1* (holo: BRI [AQ532120 Sheet 2]; iso: BRI; PERTH04431685, *n.v.*).

Perennial with a tap root and trailing stems. Stems terete, herbaceous, glabrous. Leaves palmately compound, petiolate; petiole 1–11 cm long; blade ovate to broadly ovate in outline, 3–11 cm long, divided into 3 primary leaflets with each of the lateral leaflets with a secondary lobe towards the base, so the leaf appears 5-lobed, glabrous, terminal leaflet narrowly elliptic to elliptic, 3–10 cm long, 0.5–3 cm wide, tapering towards the base, apex acute, mucronate, margin undulate, toothed or occasionally shallowly lobed, with a mid rib and 12–16 pair of secondary veins, side leaflets 2.5–6 cm long, 4–12 mm wide, with a secondary lobe 1.5–3.6 cm long, *c.* 6 mm wide at the base. Inflorescence axillary, cymose, bracteolate; peduncle 1.5–10 cm long, thin, wiry, becoming recurved in fruit, bearing one, occasionally 2 or 3 flowers; bracteoles opposite to sub-opposite, very narrowly linear to subulate, 3–5 mm long, 0.7–1 mm wide at the base, acute, mucronulate, with

a thin hyaline margin, glabrous, persistent; pedicel 7–15 mm long, terete, slightly dilated upwards. Outer sepals narrowly ovate-oblong to oblong-elliptic, concave, 13–15 mm long, 5–7 mm wide, apex abruptly acuminate, acute, glabrous, thick with a thin hyaline margin, smooth, becoming chartaceous in fruit; inner sepals ovate to oblong-lanceolate or slightly deltoid, concave, 13–15 mm long, 7–8 mm wide, glabrous. Corolla funnel-shaped, 3.5–4 cm long, limb 3–3.5 mm diameter, white, slightly greenish at the base of the throat, lobed, glabrous; petals 4–4.5 cm long, 15–16 mm across at the limb, rounded apiculate at the tip, mid-petaline band with 5 translucent veins. Stamens 5, filaments fused for 6–7 mm from the base of the corolla tube, free for 9–12 mm, terete above, flattened and dilated downwards, hairy on the raised and angular fused part, hairs moderate to sparse, 0.1–0.3 mm long, basal cell cylindrical with a blunt terminal cell; anthers oblong to oblong-lanceolate, 3.25–3.65 mm long, 1.25–1.4 mm wide, sagittate, basal lobes 0.4–0.7 mm long, apex rounded to emarginate, splitting lengthwise at anthesis, but barely twisting. Ovary globular, 1.7–2 mm high, on a distinct disk, glabrous, 4-celled, 1 ovule per cell, style 1, 12–13 mm long, stigma biglobular, each 1.3 mm across. Capsule ovoid to globular, *c.* 8 mm across; seeds globular-ovoid, *c.* 5 × 4.75 mm, dark brown to black, densely pubescent.

**Fig 2.**

**Additional specimens examined:** Western Australia. On E side of Wade Creek, *c.* 40 km W of Kalumburu Mission, May 1996, *Mitchell 4373* (BRI, PERTH); Sale River, May 1986, *Kenneally 9577* (PERTH); Kachana Station, about 50 km S of El Questro Homestead, Sep 1994, *Waser & Hengeler 01* (BRI, PERTH). Northern Territory. Spirit Hills area, *c.* 35 km SW of Bullo River Homestead, Mar 2009, *Cowie 12328* (BRI, DNA).

**Distribution and habitat:** *Merremia kimberleyensis* has been recorded from a few localities in the northern Kimberley from the Sale River and Wade Creek, to southwest of Kununurra, extending east into the Northern Territory (**Map 1**). It grows along creek banks, usually on sandy soils, often associated with sandstone.

**Affinities:** *Merremia kimberleyensis* is related to *M. quinata*. It differs in having three leaflets, not five leaflets, in having sub-equal



**Fig. 2.** *Merremia kimberleyensis*. A flowering branchlet  $\times 1$ . B inflorescence at fruiting  $\times 2$ . A. from *Handasyde TH.95 KAC 1* (BRI). B. from *Mitchell 4373* (BRI). Del. W.Smith.

acute sepals, with the outer obtuse and much shorter than the inner.

**Phenology:** Flowering and fruiting have been recorded in January and May.

**Etymology:** The specific epithet refers to the region in which the species is found.

**Notes:** This species was recognised as *Merremia* sp. A. in the *Flora of the Kimberley Region* (Wheeler & Marchant 1992) on the basis of a single specimen from Sale River in the west Kimberley.

**9. *Merremia peltata*** (L.) Merr., *Interpr. Herb. Amboin.* 441 (1917); *Convolvulus peltatus* L., *Sp. Pl.* 2: 1194 (1753); *Ipomoea peltata* (L.) Choisy, *Mém. Soc. Phys. Hist. Nat. Genève* 6: 452 (1834); *Operculina peltata* (L.) Hallier f., *Bot. Jahrb. Syst.* 16: 549 (1893); et 18: 119 (1893); *Merremia nymphaeifolia* Hallier f., *Verslag Staat Lands Plantentuin Buitenzorg* 127 (1896), *nom illeg.* **Type:** illustration in G.E.Rumphius, *Herb. Amboin.* 5: 428, t. 157 (1750) (lecto, *fide* Merrill (1917: 441)).

*Ipomoea nymphaeifolia* Blume, *Bijdr.* 719 (1826). **Type:** “in fruticetis montanis et in convallibus umbrosis circa Buitenzorg”; *n.v.*, *fide* Ooststroom (1939: 352, 357).

*Ipomoea menispermacea* Domin, *Biblioth. Bot.* 89: 535 (1928). **Type:** Queensland. Cook DISTRICT: ap. flumen Harveys Creek, January 1910, *K.Domin s.n.* (holo: PR530538 [photo BRI]).

**Distribution:** Queensland; also tropical Africa, Malesia to Polynesia.

**10. *Merremia quinata*** (R.Br.) Ooststr., *Fl. Males.* ser. I, 4: 447 (1953); *Ipomoea quinata* R.Br., *Prodr.* 486 (1810); *Convolvulus quinatus* (R.Br.) Spreng., *Syst. Veg.*, 1: 590 (1824). **Type:** Northern Territory. North Coast. Island  $\alpha$  [Mallison Is., N.T.], 1 Mar. 1803, *R.Brown* [*Bennett no.* 2755] (holo: BM [photo BRI]).

*Ipomoea hirsuta* R.Br., *Prodr.* 486 (1810); *Convolvulus brownii* Spreng., *Syst. Veg.*, 1: 590 (1824) *nom. illeg.* **Type:** Northern Territory. Arnhem, north Bay [Melville Bay], 14 February 1803, *R.Brown* [*Bennett no.* 2756] (holo: BM [photo BRI]).

**Distribution:** Western Australia, Northern Territory, Queensland; also Malesia.

**Note:** An earlier but invalid combination for *Merremia quinata* was cited by Ooststroom (1948) referring to *Nova Guinea, n.s.* 5: 24; however, this was never published.

**11. \*Merremia quinquefolia** (L.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893); *Ipomoea quinquefolia* L., *Sp. Pl.* 1: 162 (1753). **Type:** illustration in Plukenet, *Phytographia*, t. 167, fig. 6 (1692) (lecto, *vide* Austin (1975: 182)).

**Distribution:** Queensland; native of tropical America, also naturalised in Africa and Malesia.

**12. \*Merremia tuberosa** (L.) Rendle, in W.T.Hiselton-Dyer, *Fl. Trop. Afr.* 4(2): 104 (1905); *Ipomoea tuberosa* L., *Sp. Pl.* 160 (1753). **Type:** Jamaica (lecto: LINN [Herb. C.Linnaeus 219.4], *n.v.*, [(microfiche IDC 177-5. A123: I. 2)], *vide* Austin (1975: 182)).

**Distribution:** Queensland; native of tropical America, widely cultivated in Old World tropics and occasionally naturalised.

**13. Merremia umbellata** (L.) Hallier f., *Bot. Jahrb. Syst.* 16: 552 (1893); *Convolvulus umbellatus* L., *Sp. Pl.* 1: 155 (1753). **Type:** illustration in Plukenet, *Phytographia*, t. 167, fig. 1 (1692) (lecto, *vide* Austin (1979: 221)).

**13a. \*Merremia umbellata** (L.) Hallier f. subsp. *umbellata*, Ooststr., *Fl. Males.* ser. I, 4: 449 (1953).

**Distribution:** Northern Territory, Queensland; native of tropical America and west tropical Africa.

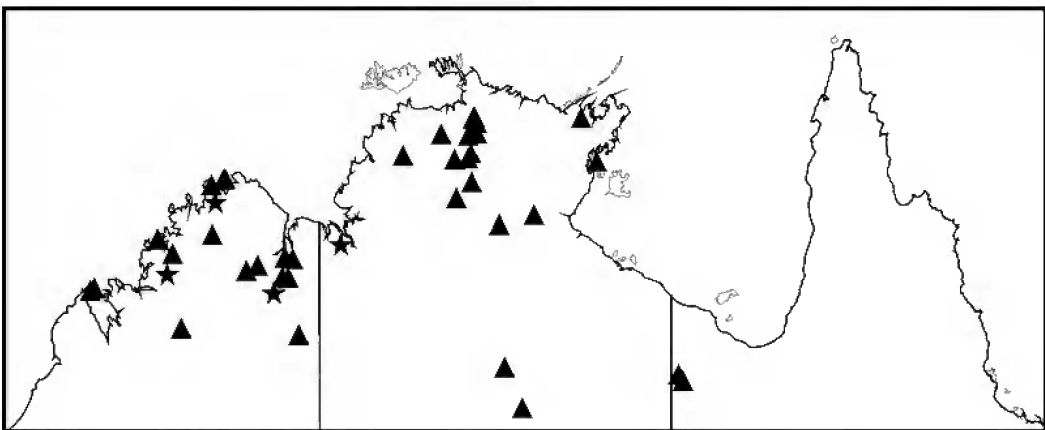
**13b. Merremia umbellata** subsp. *orientalis* (Hallier f.) Ooststr., *Fl. Males.* ser. I, 4: 449 (1953); *Merremia umbellata* var. *orientalis* Hallier f., *Verslag Staat Lands Plantentuin Buitenzorg* 132 (1896 '1895'). **Type:** East Indies, Java, Batavia, no specimen cited, *vide* Verdcourt (1963: 54).

*Convolvulus cymosus* Desr., in J.B.A.P.Lamarck, *Encycl.* 3: 556 (1792); *Ipomoea cymosa* (Desr.) Roem. & Schult., *Syst. Veg.* 16<sup>th</sup> edn, 4: 241 (1819). **Type:** from the East Indies, *n.v.*, *vide* Ooststroom (1939: 334, 341).

**Distribution:** Western Australia, Northern Territory, Queensland; also tropical E Africa, S and SE Asia to Polynesia.

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Map 1. Distribution of *Merremia incisa* ▲, *M. kimberleyensis* ★



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